

Fall 2007

Mechanics

When Gravity Takes Over

The Stinger Stings Back

I Saw the Light



THE NAVY & MARINE CORPS AVIATION MAINTENANCE SAFETY MAGAZINE

Vol. 46, No. 4 Fall 2007

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Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This command's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is dangerous and demanding enough. The time to learn to do a job right is before combat starts.

Mech (ISSN 1093-8753) is published quarterly by Commander, Naval Safety Center, and is an authorized publication for members of the Department of Defense. Contents are not necessarily the official views of, or endorsed by, the U.S. Government, the Department of Defense, or the U.S. Navy. Photos and artwork are representative and do not necessarily show the people or equipment discussed. We reserve the right to edit all manuscripts. Reference to commercial products does not imply Navy endorsement. Unless otherwise stated, material in this magazine may be reprinted without permission; please credit the magazine and author. Periodicals postage paid at Norfolk, Va., and additional mailing offices.

POSTMASTER: Send address changes to *Mech*, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399.

Send articles, BZs and letters to the address above, or via e-mail to the *Mech* staff, SAFE-Mech@navy.mil. Visit us on-line at www.safetycenter.navy.mil.

what's

Features

4 Short Fall Leads to a Big Knock on the Head

By AD3 Xiao Yi, VP-9

Work stands are very helpful, but they can be unsafe, as this petty officer found out.

6 Fingers: Flexible, Handy...and Fragile

By AM3 Marc Michot, VFA-83

A maintainer puts a finger in a place it shouldn't be and pays a price.

7 Fingers: Flexible, Handy...and Fragile—Case No. 2

By AM2 Dale Hazelton, VFA-137

Another maintainer learns about putting fingers and hands in the wrong place.

8 When Gravity Takes Over

By ADAN Cameron Vanberg, VP-8

Moving a piece of SE by hand shouldn't be a problem, unless a number of unexpected things happen.

9 Moment of Inattention

By AD3 Claudia Martinez, VFA-14

The PTS spins at high revolutions, and you should keep everything away from it. That's a lesson this Sailor learned...the hard way.

10 On the Cutting Edge

By PR3 John Bradley, VAQ-141

Specific tools are available for punching holes in webbing. What do you do when that tool doesn't work?

11 The Day I Got Hooked

By AMAA Jonathan Swafford, VAQ-141

Many aircraft-related springs are under great tension, and this maintainer found out how much.

12 **The Stinger Stings Back**

By Anonymous Marine, USS Boxer (LHD-4)
A simple story about moving a helo while holding the stinger. In this case, the stinger packed a bite.

13 **Why PPE Works**

By 1stLt. Christopher DeMars, HMM-166
Good example of why maintainers should wear the right PPE for every task.

18 **Hoist Operations Gone Wrong**

By AT3(AW) Karen Hemenway, USS Dwight D. Eisenhower (CVN-69)
It pays to check all gear for design flaws before using the equipment. This Sailor found out...again...the hard way.

21 **Benefit Didn't Outweigh the Risk**

By SSgt. Tony Allen, Jr., VMR-1
When is it better to push a piece of SE, rather than use a tow tractor. When the hangar isn't full of aircraft, of course.

22 **I Saw the Light**

By AT2 Joshua Skiles, VAW-121
Even though this Sailor was aware of a hazard, he didn't avoid it, and he now has a permanent reminder.

14 **Good, Bad and Ugly**

Photos and short summaries of the best and worst found around the fleet.

15 **Maintainers in the Trenches**

A pictorial homage to the people who keep planes flying.

16 **Air-Wing Toolbox: A Collateral Duty Inspectors (CDIs): A Maintenance Officer's Perspective**

By Cdr. Don Buzard, C2F
Insightful article on screening candidates for this critical job and ways to track quals and performance.

17 **Mishap Stats**

24 **Bravo Zulu**

VP-47, USCG ATC Mobile AL, VFA-83, VMA-513, HSL-42, VFA-143, VAQ-142, VP-5, VP-26, VR-56, VAW-113, HMH-772, VFA-213, HSL-48 Det. 7, and H&HS Yuma

29 **Crossfeed**

Maintenance experts talk about reclamation team, hazmat, PPE, battery safety, and Class C mishaps.

IBC **Sierra Hotel**

Commands that have completed surveys, culture workshops and MRM presentations.

Departments

2 **Admiral's Corner: Taking Charge of Safety**

By RADM Artie Johnson
The admiral shares some goals and asks maintainers for their help.

2 **Injuries and Damage Affect Readiness**

By Dan Steber, Naval Safety Center
The editor addresses the costs that result when maintainers get hurt, damage gear, or die.

Front cover: Flight deck personnel assigned to Air Department conduct aircraft salvage training with the emergency heavy, lift crane, nicknamed Tilly, during a "fast cruise" aboard the Nimitz-class aircraft carrier USS Abraham Lincoln (CVN-72). Navy photo by PHAN Jordon Beesley.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION 01 October 2007
The United States Postal Service requires all publications publish a statement of ownership, management and circulation.

Date – 01 October 2007
Title of Publication – Mech
ISSN – Publication No. – 1093-8753
Frequency of Issue – Quarterly
Location of Office of Publication
Commander Naval Safety Center
375 A Street
Norfolk, VA 23511-4399

Publisher – U.S. Navy
Editor – Dan Steber
Owner – United States Navy
Total no. copies printed – 16,238
No. copies distributed – 15,988
No. copies not distributed – 250
Total copies distributed and not distributed – 16,238
Issue date for circulation data above – Summer 2007



Admiral's CORNER

FROM COMMANDER, NAVAL SAFETY CENTER



Taking Charge of Safety

I recently assumed command of the Naval Safety Center. I'm as proud of maintainers as my predecessor, RADM Mayer, who praised you in his farewell message. I think you'll find that I'm straightforward and will work hard to keep you safe on and off duty.

My philosophy is simple: All Sailors must do their part to improve safety and reduce mishaps. Everyone needs to take charge of safety. You need to determine what's acceptable in your command, and then hold one another accountable. We need engaged leaders and supervisors.

I picked up a theme over the years, "Reward the stuff you want to see, and punish the stuff you don't want to see." Think about those words. You'll see that small rewards for good safety practices will eliminate or reduce the need to punish bad performers.

Over the next few months, you'll see or hear about a virtual advisory board that I want to set up. That's where Sailors around the fleet can provide feedback to help me and my staff with new ideas, projects and programs.

My goal over the next few years is to produce a world-class safety organization—not just at the Naval Safety Center, but collectively around the fleet. I need your help, and maintainers have been great over the years at figuring out how to make good things happen. I need you to continue your safe maintenance practices and to help us prevent mishaps.

RADM Artie Johnson

Injuries and Damage Affect Readiness

By Dan Steber

In this issue, we are featuring stories about injuries and damage around the fleet. We've known for years that injuries and damage have cost us a lot, but I was a little surprised to see the real numbers. Here's an example of the data from 2001-2007:

Injury Codes

A = Fatalities	5
C = PPD (permanent partial disability)	15
D = Greater than 5 lost workdays (LWDs)	90
E = 1-4 lost workdays (LWDs)	82
F = First aid	243
M = Less than 1 lost workday (LWD)	177
Total lost workdays (LWDs)	2,999

These numbers are surprising for a couple of reasons: They're large (almost one and a half injuries each day), but the numbers are not accurate. We know they are underreported, and the real number is higher.

The dollar cost for maintenance-related mishaps doesn't match that of aviator-related ones, but it's not "chump change." A review of the mishap database shows more than \$10 billion since 1980 (start of the database) for aviator-involved mishaps and more than \$2 billion with maintenance-related causal factors. Aircraft damage also costs us readiness because we can't use assets when damaged and workload increases, reducing time to work on other gripes.

Injuries 2001-2007

Year	IC-A Fatals	IC-C PPD	IC-D >5 LWD	IC-E 1-4 LWD	IC-F First Aid	IC-M <1 LWD	Totals
2001	2	2	12	5	47		68
2002	2		15	2	60		79
2003			24	8	71	1	104
2004	1		8	19	22	29	79
2005		7	18	20	19	58	122
2006		4	11	14	12	55	96
2007		2	2	14	12	34	64
Totals	5	15	90	82	243	177	612

Lost Work Days

Year	Totals
2001	521
2002	605
2003	657
2004	189
2005	755
2006	239
2007	33
Totals	2,999

Money is part of the concern, but safety is the overriding issue. A dead Sailor or Marine can't launch aircraft. A person with a permanent disability can't fix aircraft. An injured worker leaves a void at the command. Fewer able-bodied workers means more work and a higher chance for error in the jobs that are completed. The cost of replacing talented and trained maintainers is great. Most importantly, none of us wants to lose a shipmate and friend or to see one injured.

A pet peeve of mine is falls from aircraft. Every maintainer knows that working on top of an aircraft has the potential for injury. How many take the threat seriously. I spent a bit of time as the maintenance chief of CVW-8 chasing people off aircraft because they were working without cranials or uncinched chin straps. I've seen photos on the Navy NewsStand that show maintainers working their tails off, but not following good maintenance practices: no cranials, no goggles, unstrapped chin straps, and countless other violations. It's too late after the fall to protect yourself.

Sea&Shore magazine's fall 2007 issue has an excellent study of falls in the Navy. It covers more than aviation-related cases, but it's interesting nonetheless. In this issue, we share a terrible fall from a work stand, and a lesson that you always should wear a cranial.

In this issue, I've included charts on injuries and lost workdays, and *Mech* shares stories about injuries that happened during simple maintenance. A common thread is that they all could have been prevented. These lessons serve to keep other maintainers from learning the hard way. ✦



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Short Fall Leads to a Big Knock on the Head

By AD3 Xiao Yi

It was a Friday night, just after my shift began, and after mid-check pass down, around 2330. The mech shop divided up the jobs, and we headed out to our aircraft, knowing that we had a busy night ahead of us. I wish we had known how badly it would turn out.

An AD2 and I were assigned to install fuel nozzles on the No.1 engine of a P-3C, which was parked inside the hangar. PD-000 is a P-3C Orion that our maintenance department was working hard to return to service after an involved ISIS period and MCI inspection. We checked out PPE and tools for the job and then walked to where the plane was parked in the hangar. Two B-4 maintenance stands already were positioned on either side of the engine.

I put my tools on the stand, put on my cranial, and climbed the ladder built into one end of the stand. I jacked up the B-4 stand high enough to allow me to reach the fuel nozzles—a height of about five or six feet. Knowing all the B-4 stand's railings were installed, I took off my cranial and started installing new fuel nozzles, which was an accepted practice within the VP community.

I noticed that one of the fuel lines was in the way, preventing me from accomplishing the job. I grabbed a wrench and tried to take off the fitting on one side of the fuel line. The fitting was on very tight, so I turned the wrench harder, trying to loosen the fitting. When it finally came loose, my hand slipped and hit the frame of the engine, cutting my knuckle. It started to bleed steadily, but a banged-up knuckle and some blood isn't anything new for a mechanic. I looked down at my finger and thought, "Ah, not so bad." Suddenly, though, I felt dizzy. The rest is a blur.

When I opened my eyes, I felt like I just had awakened from a dream. I was confused as to why I was looking up at the underside of the wing and didn't know how I got there. After a minute, I realized that I just had fallen from the stand. When I tried to sit up, a stream of blood ran down my head and into my right eye. Another maintainer, who happened to be walking by and saw me, ran to the duty office and called an ambulance.





The corpsman took me to the emergency room of a local hospital, where I was treated for more than 12 hours. My injuries included a fractured vertebra in my neck and a deep cut in my scalp, requiring eight staples to close.

Considering that I was unconscious when I fell and possibly landed headfirst on a hard concrete floor, I'm extremely lucky my injuries weren't more severe.

The aircraft or support equipment wasn't damaged, a good thing, but the cost for my shop and me was substantial. My time away from work left my short-handed shop struggling even more to get the work done.

My chain of command said my accident was extremely rare; in fact, no one could remember anyone else ever falling from an elevated engine stand before.

We fly and fix airplanes everyday. Often, our maintenance tasks are repetitive which can lead to complacency, and we sometimes forget that our jobs have many hidden dangers. Safety extends far beyond following standard operating procedures, and risk-management cannot always eliminate every risk, especially those we overlook or cannot see. ORM is a tool we use to minimize the risks associated with our day-to-day tasks, and it helps us accomplish these tasks safely and efficiently.

Had I continued to wear my cranial while working on the B-4 stand, my injuries wouldn't have been as bad. In addition, a safety rope, strap, or line across the rail-less side of the stand near the ladder could have minimized or even prevented my fall. We saw a way to improve how we do maintenance on an elevated work stand, and now my wing has eliminated the previous

practice of "optional cranial usage" with the rails installed.

I learned a valuable lesson about always being alert. Accidents can happen at any time, so use ORM and challenge questionable practices or procedures that are commonplace. It may keep you from a big knock on the head. ✚

Petty Officer Yi works in the mech shop at VP-9.

Injuries From Falls (Aircraft, SE and Vehicles)

Year	IC-A Fatals	IC-C PPD	IC-D >5 LWD	IC-E 1-4 LWD	IC-F First Aid	IC-M <1 LWD	Totals
2001	1		2				3
2002			4	2	1		7
2003			8	1	1		10
2004			3	4	3	3	13
2005			9	6	2	15	32
2006		1	3	4		13	21
2007				6		2	8
Totals	1	1	29	23	7	33	94

Fingers: Flexible, Handy... and Fragile

By AM2 Marc Michot

When I first came to the airframes shop, I felt uneasy about working on aircraft. I usually would tag along with other people and hold their flashlights, hand them tools, or watch their tool-boxes while they fixed the jets. But after a few months, I would dive deep into whatever needed to be done. After being successful on certain tasks, I started to become more confident that I was ready for more difficult kinds of jobs.

I had been in the airframe shop for five months and had put on second-class two months earlier. I felt a gap existed between my rank and my technical knowledge. I wanted to expose myself to all sorts of major maintenance to narrow this gap, so I would volunteer for any task that I hadn't done before.

At the time of my mishap, I was working nights. The port and starboard component on the upper side brace of an FA-18C needed to be replaced. I told my supervisor that a shipmate and I would take care of it. My co-worker kept telling me that replacing the component was easy and would be no big deal. I never had done it before, but he had changed this part plenty of times. Our plan was for him to replace the starboard component, and I would watch each step and then repeat it on the port side. The tough book was open to the work package and was on the deck between us.

I watched him start his side and then broke the safety wire and removed some bolts on my side (copying his steps). I looked back at his side for further instruction. He was working very quickly. He pointed to the bolt that was the next to be removed. I returned back to the port side and broke the torque on the bolt. It wasn't a very big bolt—only slightly larger than my index finger. I removed the nut and pushed the bolt back out of the hole with my finger. The bolt slid out smoothly and hit the deck. Immediately, the side brace folded slightly, the landing gear shifted inboard, and I felt my finger get pinched.

The weight that the bolt supported, combined with the sharp and metallic edges of the bolthole, was enough to cleanly sheer off my fingertip. I wasn't sure how much had been cut off because so much blood was



gushing out. I yelled for my shipmate, and he immediately saw my serious injury. I already was in a state of shock.

My co-worker told my supervisor, while someone else found the tip of the finger and brought it to me. My supervisor escorted me into maintenance control. The maintenance chief looked at me as I held up my bloody left hand and clutched my fingertip in a piece of cheesecloth with my right hand. We immediately were sent to medical, and a surgeon operated that same night. I ended up losing about a quarter-inch of my left index finger halfway down the fingernail, along with the tip of the bone.

I wish I could go back to that night. The accident easily could have been avoided. Obviously, I should have used a punch or a screwdriver to push the bolt. Even though the job was fairly simple, I should have taken time to watch my shipmate do one side completely. He then could have watched me do my side. I got so absorbed in how to remove the component that I allowed myself to forget why the bolt was there and what would happen when it was removed. The punishment for my negligence was very painful and irreversible. 🙏

Petty Officer Michot worked in the airframes shop at VFA-83 when this story was written.

Fingers: Flexible, Handy... and Fragile—Case No. 2

By AM2 Dale Hazelton

I had been working at AIMD SEAOPDET for a couple years and was on board USS *Eisenhower* (CVN-69) as a hydraulic technician. We received a shock strut for the nose landing gear with a blown slipper seal. This happened on a regular basis, but this time the outcome would be different.

After we broke down the strut and repacked it with all new seals and O-rings, we started to rebuild the strut. We were having a hard time placing the piston assembly into the strut housing because of the new O-rings. The piston just didn't want to go in. We then decided to stand the strut assembly on end and beat it with a mallet. The housing moved a bit but not enough to seat the housing in the piston. Now, being well-trained airframers, we next decided to bounce the strut on the deck. A few good bounces, and we were looking

good. A few more bumps, and it would be perfect.

For those of you unfamiliar with the strut assembly, three holes are on top of the housing assembly. Two of the small holes on each side are for servicing the strut. The larger hole—top dead center—allows the metering pin to slide through. With one more bounce needed to seat the housing, I wanted to get a good grip on the strut. Grabbing the assembly around the top with one hand, I placed the other hand right on top, with the ring finger inside the large center hole. We then gave the strut one last bounce.

With this final bounce, the housing seated onto the piston while the metering pin tried to come through the hole—yes, the same hole where I had placed my finger. I got an instant broken finger: black, blue and purple. I hadn't realized I had put my finger in the

hole. I had built up these struts dozens of times before.

What had gone wrong this time? Where or when was ORM applied in our procedures? This incident showed that just because "we always do it this way" and are in a hurry doesn't mean it always is done the right way. Had we taken time to assess the situation and identify the hazards, I would have kept my finger out of that hole and out of a cast. 🦋

Petty Officer Hazelton works in the airframes shop at VFA-137.



This is the strut assembly.

When Gravity Takes Over

By ADAN Cameron Vanberg

I almost was two months into my first deployment with the Fighting Tigers of VP-8. We had been deployed to Al Udeid Air Base located in Qatar. January here was a welcome reprieve from the harsh winters of Brunswick, Maine. Although we did not have to contend with snow and ice, our new environment presented our line shack with plenty of challenges. I quickly would learn a valuable lesson...the hard way.

Trying to back the P-3 Orion from a narrow-graded ramp into a parking spot, which was just deep enough for the main mounts to remain on the pavement, was just one of those challenges. Striving to mitigate risks, we decided to stop all recovering aircraft on the ramp and back them into the spot, using a tow tractor. As our shop motto goes, "Tiger Line, on call to do it all!" We embraced the increased amount of work and did our best to keep up with the squadron's high operational tempo.

It was roughly 0900, and the day shift just had taken over. The line shack had been tasked to launch, recover and move two aircraft, all within 30 minutes of each other. As I joined the rest of the move crew in a hardened air shelter (HAS), our home-away-from-home for the next six months, it was apparent that we would have to work quickly. Following the first recovery, I, as a recently qualified plane handler, held a pre-move brief. All foreseeable safety hazards and the specific responsibilities of each person participating in the move were discussed. After assessing the area, we determined that an NC-10 power cart would have to be repositioned before the move could begin.

Knowing we were under time constraints, we decided to push the NC-10 out of the way by hand, rather than use the tow tractor parked about 300 yards away at the HAS. With the LPO supervising, four airmen, including myself, began pushing the NC-10. I was at the helm, steering with the tow bar in one hand, while providing minimal resistance to keep the NC-10 from coasting down the hill with the other hand.



To protect the ground-support equipment from damage and to prevent rocks and gravel from being tracked onto the taxiway, the line division had been ordered to keep all equipment on the pavement. Everyone on the move team was very aware and cautious of this fact. Approaching the edge of the ramp, I tried to apply the parking brake, but the inertia of the NC-10 coming downhill prevented me from setting the brake in time. I took one more step back, planting my foot on the loose dirt and gravel that exists nearly everywhere. I did this to keep the NC-10 from rolling into the dirt.

Friction, inertia, gravity, and momentum all worked as advertised, and I was helpless against them all. I fell to the deck, and the tow bar landed on my finger. As I stood up and removed my safety glove, I noticed lots of blood and a partly de-gloved left ring finger. The team chocked the NC-10, and the LPO took control of the situation. He applied first aid, put me in a duty vehicle,

and took me to the emergency room at the base clinic where flight surgeons took over. Three days later, I was on limited duty and scheduled to be medically up within six weeks.

The lesson to be learned here is that what works at home may not always work on deployment. The different environment gave us several new safety factors to consider: a graded surface, a narrow ramp, and loose gravel everywhere. Everyone involved also learned a powerful lesson: Preservation of equipment is never more important than preservation of life or limb. By

training Sailors to incorporate the ORM process into daily operations, we equip them with the tools to face any situation with the assurance that their decisions contribute to a safe and mission-effective environment.

In hindsight, all foreseeable safety hazards were considered. It was the unforeseeable hazards that our new operating environment provided that were not. After assessing this incident, the squadron now is using chock walkers when moving GSE, as well as using the tow tractor whenever possible. ✦

Airman Vanberg works in the line division at VP-8.

Moment of Inattention

By AD3 Claudia Martinez

We were coming to the end of our SFARP detachment at NAS Fallon, Nevada. The detachment had gone well, and we had not experienced any major problems. But that situation was all about to change.

Tophatter 204 came back with oil leaking from around the engine-bay doors. Following shutdown, we opened door 64L, which is where the leak seemed to be coming from. When we inspected the engine bay, we found no obvious source of the leak. After discussing the problem with maintenance control, we decided to do a low-power turn to isolate the leak.

We briefed maintenance control, the plane captain, and shop personnel that would be involved with the turn. During the brief, we discussed the procedures that would take place during the turn. It seemed like any other leak check we had performed countless times before. Once the engine was turning, we began to look around the oil tank and the accessory gearbox—two obvious spots. We decided that it would be a good idea to wipe off the excess oil so it would be easier to find the leak. I began with the B-sump vent tube. I thought everything was going fine, but that's when everything went terribly wrong.

The power transmission shaft (PTS), which turns at 30,000 rpm, was roughly 5 to 6 inches from the vent tube. I knew the PTS was there but decided that I had enough room to do my job. However, I misjudged the distance, and the cheesecloth I was using to wipe down the vent tube got caught in the PTS. My right hand vio-



lently was yanked up and pulled toward the spinning PTS.

As the cheesecloth was grabbed, it shredded, throwing white cloth everywhere. As soon as the plane captain noticed that something was wrong, he gave the

signal to shutdown the engine. It was shut down immediately, and I began to pick up the pieces of cloth, not even realizing that there were a couple of layers of skin missing off my right hand. After a couple of moments, I looked at my hand and noticed the blood.

A couple shipmates took me to the emergency room to get my hand looked at. The doc took some X-rays, and it turned out that nothing was broken. The de-gloved portion of my hand was cleaned and bandaged, and I was sent home with a 72-hour limited-light duty chit.

My hand is healing and everything looks good except for the scar that I always will have. It will remind me of that day. From this experience I learned that we must be more aware of our surroundings and that no matter how routine or easy a job may appear to be, attention to detail is always a part of the process. I never will forget that the jobs we do everyday have the potential to injure or kill in a split second. ✦

Petty Officer Martinez works in the power plants work center at VFA-14.

On the Cutting Edge

By PR3 John Bradley

Many ideas, in hindsight, simply don't turn out to be the best decisions. I recently proved that I'm no different than anyone else when my great idea turned into a nightmare.

I consider myself a good worker, well motivated, and I feel that I practice safety in everything that I do. I have been in the Navy for three years and ever since I can remember, I have heard ORM preached in every way. Yet, mishaps happen when you least expect it, and usually because of poor headwork.

The morning of my incident was like so many before; my shop had our hands full. Being a parachute rigger, I don't have the jet work that the other shops face, but my shop more than makes up for it with our work on aircrew gear.

On this particular morning, I was doing a routine build-up on the flight gear for one of our new aircrew.



This work is relatively simple but a time-consuming process. We still had a lot of work to do and wanted to get this job done quickly so the lieutenant could start flying. I never dreamed doing something so simple could cause such a problem.

While putting in the tackings on a survival vest, I ran into a very thick piece of webbing. It almost was impossible to push the thick hook needle I was using

through the material.

Unfortunately, it was the smallest needle that we had. We have special tools to force a straight needle through thicker material but that step didn't work. In fact, the straight needle is thicker than the hook needle!

I am a pretty resourceful person and tried different ways to get the tacking in, all to no avail. Finally, I decided to try and put a small hole in the webbing using a pair of small scissors that we have. It seemed like a simple enough task, but boy was I wrong. Just poking a hole through the material was a hard task to accomplish. While attempting to make a hole through the material, the scissors slipped. I luckily had sharpened the scissors just before starting work on the vest. Was that a good idea or what?

When the scissors slipped off the webbing, one edge sliced right through the pad on my left index finger. My first thought was not an uncommon one, "Oops," followed with a few choice words. My next thought was more on target: "Man, was that dumb," followed with a few more words not fit to print.

The blood now was flowing freely out of my finger. When it wouldn't stop, I knew I was on my way to the emergency room. An hour later, I had five stitches in my finger and a week of limited duty.

Because of my carelessness and the already thin manning in my shop, everyone else will have to work even harder to get our mounting workload done. I clearly can see NOW what I had done was wrong. Just like in any game, it's easier to point out the problems after the clock ticks off. I learned a valuable lesson, and a thorough ORM review or even a quick dose of time-critical ORM would have pointed out how bad it could get when I used a non-standard tool for this simple function. I'm alive and ready to move forward in my career with one simple reminder of a bad decision. 🗡️

Petty Officer Bradley works in the paraloft at VAQ-141.

The Day I Got Hooked

By AMAA Jonathon Swafford

A typical day during workups is not vastly different than any other workday, but this time I left work at noon, in an ambulance, and was granted four days of convalescent leave.

The day began as usual: I came in, got into my coveralls, started pre-ops, did FOD walkdown, and went over the day's pass down that included a list of tasks we needed to do. I started removing panels and helped my shipmates do some of their jobs. All of it was in a normal day's work.

In the afternoon, one of our AM3s asked me to help him remove the tail bumper on one of our aircraft, and, since I was new in the shop, I was a prime candidate for odd jobs. He was fairly familiar with the procedure, having worked on the acceptance of seven jets in the past six months and all of them "up jets" after their first check flight. The pub simply says to "remove the tail bumper," so we checked out the toolbox and other tools that were required to do the job and headed for the hangar bay.

Our job was to remove the tail-hook bumper spring that retracts the hook. It started off right, and everything was running smoothly. Any doubt I had about the safety of the evolution disintegrated. We were close to the end of the job; one of the last steps is to loosen the bolts that hold the spring to the jet. This spring is under some tension, and it is much easier to remove it if someone applies pressure in the opposite direction. By adding pressure, we thought we would decrease the chance of the bumper popping back and flying across the hangar bay, damaging something or injuring someone.

As I was holding onto the spring, the AM3 was loosening the bolt, when it came loose and popped back into my hand, hooked end first. At the time, I did not realize the hook had gone into the bottom of my ring finger, through the webbing, and through my pinkie finger, nearly coming out the side of my hand.

Luckily, the AM3 was able to remove the hook from the other side and got me into the shop for help as fast as he could. I was moved to maintenance control where paramedics showed up, bandaged my entire hand, and then rushed me to the ER.



I learned a few lessons from this evolution. First, you always need to look at the pubs for the job you are going to do. In this case, it just says "remove the tail hook bumper" with no particular instructions or cautions about how to relieve the tension on the spring. We knew from experience it would be under tension, but the amount of force was unexpected.

If you know a procedure raises safety questions, but no cautions are associated with it, you should send a recommended change to the safety officer. Since we had done quite a few acceptances, we knew what we were up against and could have submitted a change earlier. PPE isn't required for this job, but it could have been had we submitted the change. Also, if you don't feel safe about a procedure, you should speak up.

The last point is that we had lax conditions. We had looked at the pub and done this procedure many times, but this familiarity caused us to go through the motions instead of really briefing what might happen. Had I thought of these things, it could have saved me a ride to the hospital. 🚑

Airman Apprentice Swafford works in the line division at VAQ-141.

The **Stinger** Stings Back

By Anonymous Marine aboard USS *Boxer* (LHD-4)

Launch, recover, respot, and do it all again, that was our schedule. Our AH-1 Cobra was due back in a few minutes, and we were ready. It landed on Spot 7, and we waited for the LSE to signal for shut-down so we could secure the bird. I took my normal spot at the tail and grabbed hold of the stinger. That was the beginning of an incident I'd rather forget.

A yellowshirt directed us to raise the ground-handling wheels, and we began moving the aircraft to clear the landing area for Harrier launches. After the Harriers launched, we got down to business. We headed down the flight deck toward our parking spot. Everything was going according to plan, just as it always did.

The aircraft director pushed the Cobra into the lineup spot within a few minutes. Now it was our time to shine. One person was on each side of the skids and ready to lower the ground-handling wheels. I was on the



Navy photo by PH3 Evan Priesthoff



tail section holding onto the stinger (unfortunately, I was holding the stinger by the flat section and not the angled section). The front ground-handling wheels were lowered, resting the front part of the skids on the deck. We started releasing pressure from the rear ground-handling wheels at the same time. Without warning, the port side of the front skid ground-handling wheel dropped to the full-down position. In addition, the flight deck just happened to roll to port, causing the flight deck to swing upward and toward the aircraft tail. Both these actions caused the tail skid to collide with the deck. I was able to get my body out of the way of the tail but didn't let go of the stinger. You probably can guess what happened next. The stinger did its job and prevented any damage to the aircraft's tail. Unfortunately, since I was holding the stinger on the flat section, my hand was smashed between the stinger and the deck.

Flight-deck personnel saw what had happened and asked me if I was alright. I thought I was fine...just a little tingling in my left middle finger. I removed my glove and saw blood oozing from my crushed finger.

I walked down to aviation medical, where one of my friends works. I thought I had smashed my finger pretty good and might lose a finger nail. He took one look at my finger and took me to the surgeon. He examined my finger while the corpsman started cleaning my hand. That's when the pain hit. I was taken into the operating room where the surgeon removed the end of my middle finger at the first knuckle.

The moral of the story is that even the simple and mundane evolutions can find a way of becoming dangerous toward the end of a nine-month deployment. Our move crew had become complacent. We had moved Cobras day in and day out and nothing eventful had happened. Today, something did. We were going through the motions. We weren't thinking about the possible effects of rare and uncommon factors: like a wheel suddenly locking into an unexpected position or a large swell causing the ship to take a larger roll than usual. Mentally, we didn't stay ahead of the evolution. I only lost the end of one finger but easily could have lost my entire hand. ✚

WHY PPE WORKS

By 1stLt. Christopher DeMars

Everyone loves to complain about wearing PPE. Typical gripes are, "It's uncomfortable," "It's old," "You can't see well through the goggles." A ton of reasons exist for not wearing it, but here's a good reason you should.

Sgt. Clark, a flight-equipment Marine was using a sewing machine that he'd worked on a hundred times before. Never before had there been a problem with the machine; it always had worked as it was supposed to. Today was much different. The machine started making a grinding noise. The thread



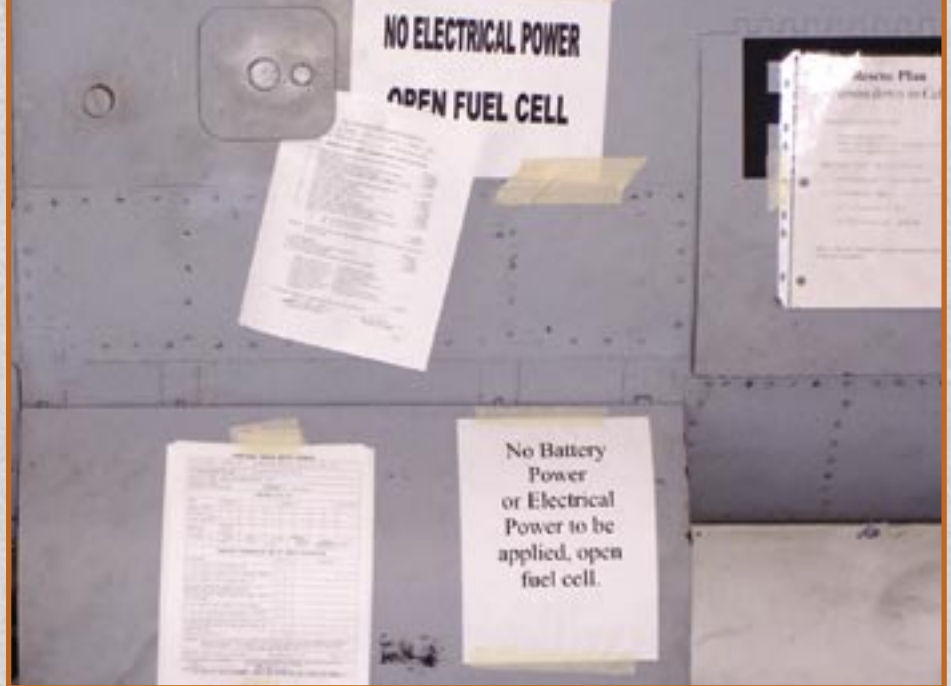
had tangled in the bobbin and had started to bend the needle. A few seconds later, the safety goggles jumped on his face. He stopped working, got up from his chair, and found part of the needle sticking out of his glasses. You can see from the photo exactly where this needle was heading.

We stress PPE for a reason. Here's the perfect example of why you always should have it and wear it. ✚

1stLt. DeMars is the Ground Safety Officer at HMM-166.

Good

Proper identification of an open fuel cell, no power signs, and other required postings show this command has it together.



Bad

How do you get to the eye-wash station through this pile of stuff.



Ugly

Cigarette butt in a no-smoking area... right next to a rubber hazmat/fuel dam.



Maintainers in the Trenches



AD1 Peter Farala (left) and AD3 Tran Quy, both assigned to the "Sun Kings" of VAW-116, install a propeller on an E-2C Hawkeye after performing scheduled maintenance. Navy photo by PHAN Timothy Roache Jr.



PR2 Jack Sims assigned to the Paraloft Department at NAS Whidbey Island, checks the paperwork on the oxygen regulators for flight gear. Navy photo by PH3 Elizabeth Acosta.



A Marine Corps plane captain assigned to the "Silver Eagles" of VMFA-115, performs maintenance to one of the squadron's FA-18A+ Hornets on the flight deck of the *Nimitz*-class aircraft carrier USS *Harry S. Truman* (CVN-75). Navy photo by PHAN Kristopher Wilson.



Sailors assigned to the Raging Bulls of VFA-37 perform routine maintenance to an FA-18 Hornet on the flight deck of the *Nimitz*-class aircraft carrier USS *Harry S. Truman* (CVN-75). Navy photo by PHAN Ryan O'Connor.



Mech

same: I read the NAMP. Unfortunately, I rarely heard someone say, "My chief taught me."

During my often lengthy interview and training process, I explained to candidates that they were going to be my eyes and ears in the work center and would make sure my programs were implemented and adhered to. I told them I would hold them accountable for their work center's program readiness. I further explained they could not ensure program readiness unless they had a basic understanding of their work center's programs. When I received nods of understanding, the questioning began. To help prepare for this inquisition, I provided an outline of the topics I would cover, including a long list of acronyms I wanted them to know. You'd be surprised what they knew and what we, leadership, take for granted. I might add that not all candidates qualified the first time.

I covered topics common to all work centers, such as blocks on a VIDS/MAF (we still use them), NAMDRP, dispersed technical publications library management, tool control, and hazmat. I also made sure they understood all columns on the NALCOMIS or OOMA work-center workload report, including supply project and priority codes, supply status and equipment operational capability (EOC) codes, SM&R codes, and MESM. I further placed significant emphasis on in-process inspections because most CDI and QAR candidates could not explain when in-process inspections were required, who was required to perform them (CDI or QAR), or how to document them in NALCOMIS/OOMA. After these common topics were addressed, I would discuss the work center's specific programs and embark on a field trip to the work center to review these programs. Easy targets were SE preoperational records (4790/52 cards). I'd verify pre-ops were done and that pre-op checklists were available in the work center. I found this approach to be a great opportunity to check and inspect the work center's SE (jacks, connector-repair kits, tire-inflator kits, hydraulic spectro-analyzer, and other gear).

You probably are thinking that either these must have been some really poorly trained Sailors or this maintenance officer is really ticked off. Both could be true, but I would tell you that I have worked with and trained organizational-and-intermediate-level maintainers, Sailors and Marines, aboard ships and ashore, and the lack of program knowledge exists everywhere. I have had many chiefs and officers ask why I spent so much time training, and my answer was always the same. I could accept the training deficiency or work to change it, and I chose to change it.

Hopefully, many of you have benefited from Sailors and Marines who have been through my CDI, QAR

and safe-for-flight training, and I also hope that they are training others to take their place...as I have done. People, planes and programs are our business in aviation maintenance, and all three deserve the same level of attention. Do it, do it right, and do it safely. ✚

Cdr. Don Buzard is the maintenance officer at C2F.

Flight, Flight-Related, and Ground Class A and B Mishaps 06/28/2007 to 09/19/2007

Date	Type Aircraft	Command
07/30/2007	FA-18C	VFA-195
Aircraft crashed into water. Pilot ejected safely and recovered.		
08/04/2007	FA-18C	VFA-146
Two Hornets had midair collision during routine carrier flight ops.		
08/10/2007	HH-60H	HSC-84
Aircraft struck ground during combat operations.		
08/14/2007	EA-6B	VAQ-131
Prowler had uncommanded loss of all external stores after catapult launch.		
08/15/2007	E-2C	VAW-120
Aircraft launched off catapult and, shortly thereafter, struck water. Three fatalities.		
08/16/2007	HH-1N	MCAS YUMA
Helo reported overdue. Search and rescue located crash site. Four fatalities.		
08/24/2007	EA-6B	VMAQ-4
Uncommanded jettison of stores, pods and drop-tanks on takeoff.		
08/27/2007	FA-18C	VFA-125
Hornet's wheel mount caught in wire during emergency landing. No injuries.		

Class B Mishaps

Date	Type Aircraft	Command
07/09/2007	E-2C	VAW-77
Starboard engine suffered external FOD on ground maintenance turn.		
07/12/2007	C-20G	VR-48
Aircraft lowered onto hard stand during maintenance evolution.		
07/27/2007	SH-60F	HS-5
Maintainer severed index finger while folding tail pylon of an aircraft.		
07/31/2007	SH-60B	HSL-49
Helo lost MLG after hard landing during familiarization flight.		
08/21/2007	FA-18F	VFA-103
Port tire failed during landing rollout ashore. Hornet remained on runway.		
08/21/2007	MV-22B	VMM-162
Nosegear collapsed during landing. No injuries.		
09/03/2007	FA-18E	VFA-27
Lost centerline drop-tank following CV launch. Drop-tank unrecoverable.		
09/18/2007	T-34C	COMTRAWING 5
Aircraft right landing and nosegear collapsed upon landing. No injuries.		



Printed as a supplement to *Mech* from
Naval Safety Center Data
Cdr. Ed Hobbs

For questions or comments, call Dan Steber
(757) 444-3520 Ext. 7247 (DSN 564)



Hoist Operations Gon

By AT3(AW) Karen Hemenway

I work night check as an EA-6B Prowler AN/ALQ-99 tactical jamming system technician aboard USS *Dwight D. Eisenhower*. A typical shift on an aircraft carrier in the Navy is very difficult to explain but mine started out just like any typical night, but it ended up with an incredible lesson.

Often throughout each deployment, the EA-6B squadron needs something out of the mezzanine, which on the ship is located on the 02 level in the forward section of hangar bay No. 1. Reconfiguring transmitters for various missions is norm for the O-level guys. Since we keep the transmitters and the PODs in the mezzanine, it means we spend one or two hours a night issuing and receiving the transmitters and PODs from the squadron.

We must use a hoist to lower these items from the mezzanine to the hangar bay deck.

On any given hoist operation, four to six people are required: a qualified hoist operator, at least two traffic-control personnel (who can be omitted when roping off the area), one line handler (two if it's a big item), one safety checker, and someone to assist the hoist operator.

That fateful night I was the hoist operator. We had all the other appropriate personnel in place and had secured the area with ropes. We had just finished bringing up three or four transmitters and one POD when everything went wrong.

The mezzanine is a storage area two stories above the hangar bay deck. That's pretty high for something



e Wrong



There was no time to call out, “Heads up!” or, “Move” or, “There is a 300-pound hoist about to drop on your heads shipmates, please be careful!”

to fall, so safety is paramount. The mezzanine is set up with two areas to raise and lower gear. One is at the aft end of the space with a platform type catwalk so you can walk out far enough to follow the hoist as its being chained out there. The other area we like to call the “hell hole.” It’s an oblong hole, approximately six feet wide by 30 feet long, reaching all the way down into the hangar bay. Access to it is gained from a balcony coming from one of the shops. All around the edge of the hole in the mezzanine are stanchions with three heavy ropes to keep people from falling.

We used to have wonderful, wide, flat pieces of metal on the ends of every rail that would lift on contact with another end piece of rail, which we used as stops for the hoist. They were replaced with weaker versions

that locked together—better in one way but worse because it won’t stop a hoist.

I was coming across from the port side to the starboard, getting ready for another POD. My assistant was helping me lock and unlock the rails, getting them lined up and ready for hoisting. The stanchions were up but control cables along with the pneumatic air hose were getting caught on them. I thought to myself that there must be a better way to do this. It’s such a pain! Trying to keep the cables and hose free from the stanchions was not what I was supposed to be doing. A split in the rails exists over the hellhole so they can be moved forward and aft. I wasn’t looking at the split, and I definitely should have been paying very close attention to that spot.



only for a high pitched “No!” I swear it wasn’t a scream. I don’t care if I am a girl, it wasn’t a scream and I’ll deny it ’til the day I die.

My world narrowed to the air hose, which had been draped over the side of the hole. It was wrapping around my shoulders because of the position of the hoist before it went over. Everything happened so quickly. In milliseconds, I knew if I didn’t move the hose, it would be going over the side with the hoist, safety ropes or not. I don’t remember throwing the controller, but I’ll take my assistant’s word for it. I do, however, remember seeing the air hose tightening around me as I was running out of slack. I grabbed the hose with both hands and spun left. The hose went up

I didn’t see the split coming, but I suddenly looked up at the rail. Was it a larger “thunk” than normal? Or did I finally realize the split was coming up? Or did my assistant warn me? I just don’t remember, but I looked up at the hoist at that specific moment, simultaneously letting go of the trigger that propels the hoist in that direction. I noticed the hoist was about three quarters of the way off the hoist rail. Had I been asked at that moment if I thought it possible for that situation to occur, I would have told you hands down, “No way.” I could feel my heart stop for a second because I knew something bad was going to happen.

Instinct kicked in, but I wish it hadn’t. I tried to get the hoist back up. I wish I had left it alone and stayed very still until I had time to yell down and tell everyone to get out of the way. Or by some miracle, we could have tied it up or gotten a net or something under it. But I already had made a bad choice.

A sprocket keeps the hoist lined up on the rail itself, and the movement of the sprocket in one direction or another is also what propels the hoist in that direction. The sprocket had come off the chain groove. It still moves, though, even if it’s not on the rail. The movement it made when I attempted to reverse actually was enough to push it just far enough to allow it to drop. No, plummet is more like it.

There was no time to call out, “Heads up!” or, “Move” or, “There is a 300-pound hoist about to drop on your heads shipmates, please be careful!” I had time

and over my head and over the side. I took the two steps back to the edge to see the rest of the fall. The hoist hit a piece of SE, bounced and fell three more feet to the deck of the hangar bay. As I leaned out over the side, I didn’t see a body, blood, crushed helmets, or anyone screaming in pain...all the things I feared. I suddenly couldn’t stand up anymore, so I sat down and shook for two hours.

The moral and lesson in my story is to make sure you follow every safety precaution. We did that in several ways: nobody was standing under the hoist, no foot traffic was in the area because of the safety ropes, and nobody got hurt. It’s important to challenge people when safety is concerned. I’d rather take a butt chewing than have someone squished under a 300-pound hoist, 820-pound POD, or even hit in the face with a guide rope. I also wish the new equipment had safety stops. They would have helped. ●●●

Petty Officer Hemenway works as a Shop 11 technician aboard USS Dwight D. Eisenhower (CVN-69).

According to the ship, the hoist and rail stops were not correctly sized to align and meet, preventing the hoist from traveling off the end of the rail. Steel plates larger than the existing stops were manufactured and installed on the hoist. A Hazardous Material Report was submitted on the hoist and rail, notifying the hoist program office and NAVAIR of a possible design issue and to alert other activities of this potential hazard.—Ed.

Benefit Didn't **Outweigh** the Risk

By SSgt. Tony Allen, Jr.

We had had a successful night, considering our workload. Most of our work was done for the night, but we still had to op check a couple of lights on the C-9B transport jet and sign off MAFs. It sounded simple.

We needed to pull the NC-10C, a mobile ground-powered generator, next to the aircraft to apply ground power—normally an easy task. It was tougher this time, though, because three HH-46 helicopters and the C-9B were parked inside the hangar, just inches from one another. The NC-10C was in the far left-hand corner of the hangar; we needed it toward the middle. The

TA-75B, a gasoline-powered tug, was parked next to the NC-10C. I have a license for the NC-10C, and the C-9B CDI working with me said he had a license for both the TA-75B and NC-10C. We proceeded to check out both pieces of equipment, after a preoperational check was done.

The Marine licensed to drive the tug asked me if I wanted to drive it. The idea seemed harmless enough, and I had operated a tug similar to this one while deployed with a previous squadron. But I did not have a license, nor did I have phase one or two training for the TA-75B, which is required to operate this equipment.



I Saw

It took me four or five attempts to get the tug started. I then shifted it into drive while the engine rpm still was high. I had my foot on the brake, but it took off like a race car anyway. An HH-46 helicopter sat just 10 feet in front of the tug, and we were heading right for the helicopter's main mount. I tried changing direction and pressed harder on the brake, but nothing affected the tug's heading. We ran into the landing strut and wheel assembly, canting the strut and damaging the outer rim of the wheel assembly.

We were fortunate that the damage was light, and it didn't require a mishap report. The pintle hook hit directly on the wheel assembly, preventing damage to the stub-wing.

We were just trying to get the job done, but I failed to apply the four ORM principles to minimize both risk and cost during this maintenance action:

1. Accept risks when benefits outweigh costs. The risk of driving a tug that I wasn't licensed to operate and the potential cost of the damage that could have occurred outweighed the benefit. I simply was lucky no one got hurt and the damage wasn't worse.

2. Accept no unnecessary risk. I ignored this clear rule.

3. Anticipate and manage risk by planning. I could have and should have anticipated that operating a tug near an aircraft was risky in itself. We should have managed the risk better and simply moved the NC-10C by hand, like we've done so many times before. Relying on luck isn't a part of a good plan.

4. Make risk decisions at the right level. As a CDQAR, I'm the enforcer of the NAMP in my shop and squadron, and I knew better. The NAMP, previous lessons learned through mishap reports, and stories in *Mech* repeatedly have told maintainers how to prevent Navy and Marine aviation and ground mishaps of this nature from happening. But I ignored that information.

The four ORM principles apply to being a leader of Marines and senior maintainer. A big mistake was operating a piece of support equipment for which I wasn't formally trained or licensed to operate. The biggest personal error was endangering the life and health of the Marine in the passenger seat next to me. I learned a career lesson. ✿

SSgt. Allen is a CDQAR in the avionics shop at VMR-1.

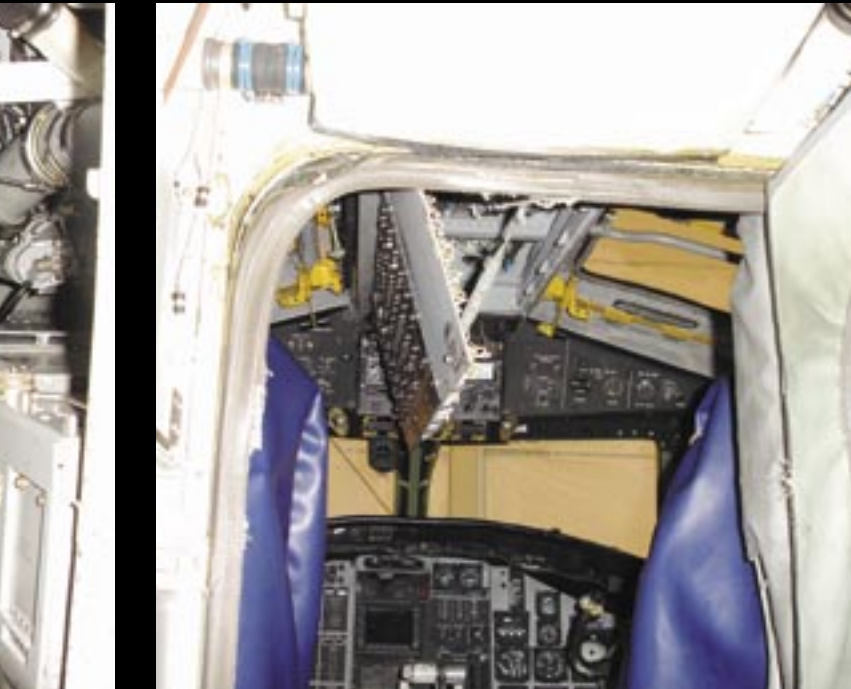


By AT2 Joshua Skiles

One duty section weekend, I was working inside aircraft 603, looking for a wire that had been giving our avionics shop a fit for the past couple of weeks. I wanted to start from the beginning to make sure all the troubleshooting we had done wasn't lost because we had missed something simple. We almost had gutted the entire cockpit and right side of the aircraft for a modification, and it now was the perfect time to be searching for breaks in this line. But I wasn't prepared for a break of a different kind.

To start searching for the troublesome line, I told maintenance control I needed the aircraft in "no power" status because I was working inside the circuit-breaker panels. I started from the switch in the cockpit and noticed that the wire I had to chase went up and behind the overhead, center circuit-breaker panel in the cockpit. I lowered that panel and continued to follow the wire 20 feet back through the aircraft's fuselage before finding the break. Realizing I needed a flashlight to avoid fixing

the Light



the problem in the dark, I began walking back to the cockpit where I had left my tools.

I knew the overhead circuit-breaker panel was hanging down and that I had to duck. As I stepped up the stairs to the cockpit, I thought I had squatted enough to keep from hitting my head. In the dark, though, it's hard to be sure what "low enough" really is.

I walked forward and suddenly, Bang! And all I saw were white lights. I knew immediately that I had ripped a huge gash in my head. I reached up to check my head, and when I brought down my hand to look, my palm was completely red. I immediately locked my toolbox and exited the plane. By this time, blood was running down the side of my face and head. I walked into maintenance control and let the duty chief know what had happened.

After spending a couple of hours in the emergency room and having 11 staples put in my head, I took some time to look back and think about what had happened.

How could I have prevented this mishap? First, I

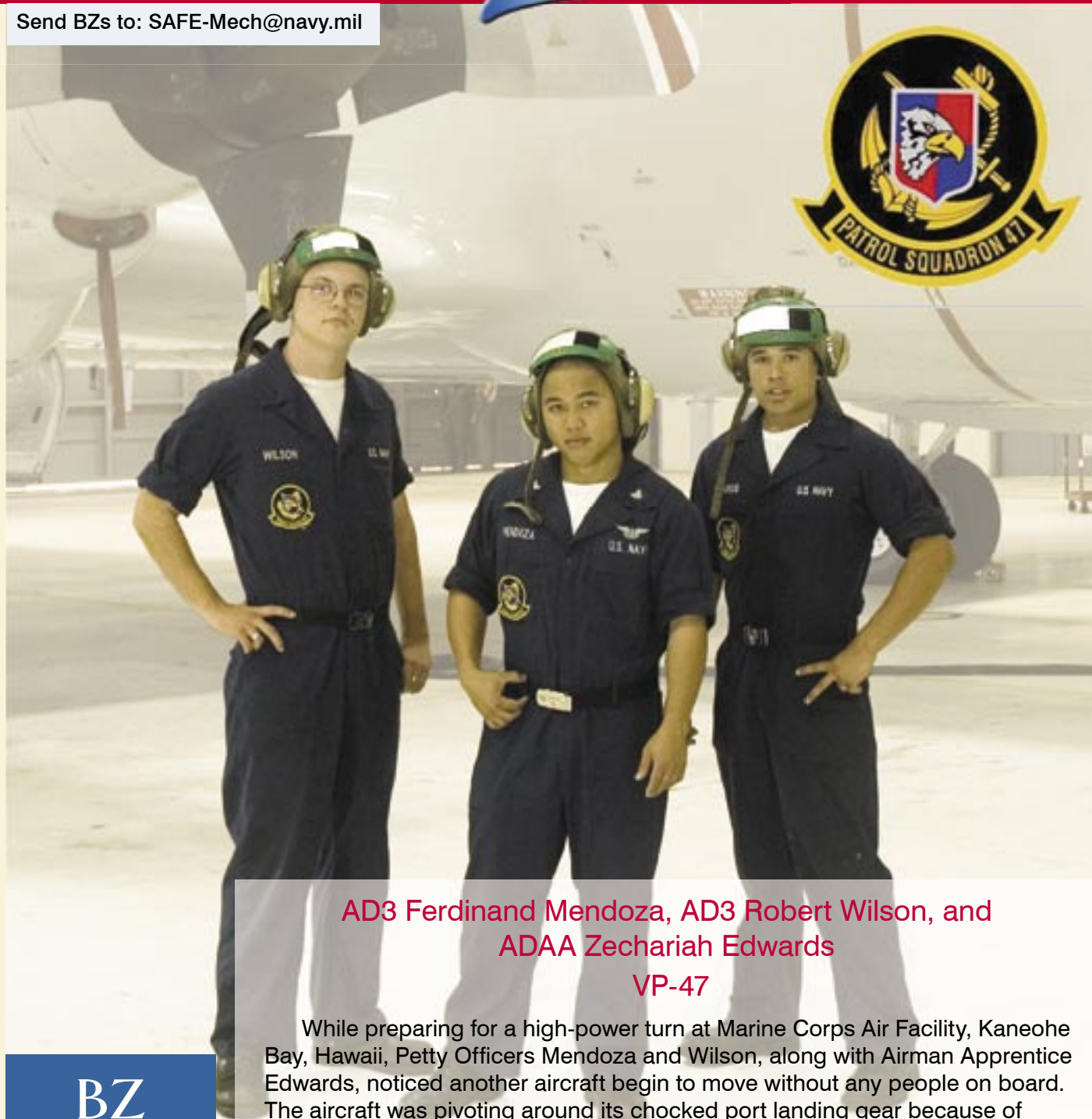
should not have been in such a rush to do my job. I was tired of this gripe and just wanted it done. Second, I could have continued working in a central location and kept the area where I was working cleaner. Familiar advice like "don't let your guard down" and "remember this is unforgiving environment" come to mind, but the one that fits best is "complacency." As we gain experience and confidence in our rate and on our aircraft, we sometimes assume every event will occur as smoothly as previous ones. Every time you begin a job without respecting the hazards and paying attention, you roll the dice and relearn an old lesson... the hard way.

I remember my mistake every time I run my fingers across the top of my head and feel a scar that will be with me the rest of my life. ❦

Petty Officer Skiles works in the AT shop at VAW-121.

Sailors and Marines Preventing Mishaps **BRAVO Zulu**

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**AD3 Ferdinand Mendoza, AD3 Robert Wilson, and
ADAA Zechariah Edwards
VP-47**

While preparing for a high-power turn at Marine Corps Air Facility, Kaneohe Bay, Hawaii, Petty Officers Mendoza and Wilson, along with Airman Apprentice Edwards, noticed another aircraft begin to move without any people on board. The aircraft was pivoting around its chocked port landing gear because of unexpected high winds.

Without delay, these three Sailors took control and directed nearby personnel to chock the aircraft, ensuring the security of all other aircraft on the line.

BZ
of the
Quarter

**Petty Officer Willcutt, USCG
ATC Mobile, AL**

Petty Officer Willcutt was preparing to service the MLG tires on an HH-65C and went to retrieve a nitrogen-servicing cart. Approaching the unit, he noticed the bottles were different colors. Further inspection revealed the bottles were filled with Argon. He then notified all hangar supervisors, and they immediately grounded all helos. Numerous aircraft were cleaned and re-serviced to make sure they were serviced with the right agent, preventing a certain catastrophe.



**AOAN D'Lane Zimmerman
VFA-83**

Airman Zimmerman saw the port engine exhaust of RAM 300 blowing on live ordnance loaded on RAM 310. He immediately signaled this problem to the squadron ordnance officer and placed himself between the engine exhaust and ordnance to minimize the hazard until RAM 300 was moved.

Airman Zimmerman's selfless action prevented an ordnance mishap that could have resulted in damage to critical weapon parts or possibly a flight-deck catastrophe.



**GySgt. Alexander Marshall and SSgt. Jeffrey Anderson
VMA-513**

While screening the logbook during an acceptance inspection of an AV-8B Harrier, GySgt. Marshall and SSgt. Anderson discovered an apparent discrepancy in the assembly service record for the aircraft's engine. The time-since-new entry for the low-pressure compressor 1/2 disc didn't seem correct. After researching the logs back to 1997 and making phone calls to both the fleet-support team and the IMA, they confirmed a transcription error dating back more than three years. The actual time on the component was more than twice that recorded in the logs, and the item was well beyond the approved service limit, threatening the safety of the aircraft and aircrew.



AO3 Rebecca Alicea
VFA-83

Before RAM 303 could be launched, Petty Officer Alicea saw a fairing was cracked on starboard station No. 5. Recognizing the severity of this FOD hazard, she immediately notified maintenance control. The piece was removed, preventing a FOD incident and severe damage. Her swift action allowed the aircraft to make the launch.



AM2(AW) Stephen Warrick
HSL-42

While doing a 56-Day special inspection on Proud Warrior 432, an SH-60B helicopter, Petty Officer Warrick found a broken guide-wire tube for the tail rotor at a mounting bracket along the tail pylon. The tube also was broken in two more spots:

in an obstructed location beneath a stabilator actuator bolt and within the hysol bonding material at another bracket. This tubing protects the tail rotor's control cables from damage as they run up the tail pylon. Had this serious problem gone unnoticed, it could have led to dangerous chafing of the tail-rotor control cables, jeopardizing flight safety.

AM2 Warrick is a hard-charging, devoted structural mechanic. His diligence and professional knowledge led to a one-day turn around of PW432 following the delivery of the new tubing. His attention to detail prevented a possible serious mishap.



Airman Linda Meale
VFA-143

A qualified Hornet PC, Airman Meale was overseeing the recovery of Dog 114. She was observing a plane-captain trainee, who just had arrived on the flight deck two days earlier from four months of galley duty. After Dog 114 was recovered, the yellowshirts signaled for a push back, which involves all hands pushing the aircraft backward into final position. This step was done while its engines still were turning.

The plane-captain trainee proceeded toward the port intake for the push back. Airman Meale, without hesitation, reached out and grabbed the trainee just before he reached the critical hazard area in front of the intake. The trainee was shaken and extremely appreciative of her efforts.



AMEAN Richard English
VAQ-142

While completing a daily turn-around inspection on aircraft 520, AMEAN English found smoke coming from the California Shelter on the EA-6B flight line at Bagram Air Base. He immediately informed the line division chief petty officer and began searching for the cause of the smoke. He quickly found the newly installed heater was overheating. It had melted the ducting tube, which connected the heater. He set a fire watch until the fire department arrived.



AM1 John Killian
VP-5

While working on a periodic inspection of the PATRONSIG hangar, Petty Officer Killian found several serious fire-safety-related discrepancies. One fire-bottle was missing, the fire bottle for the

geedunk was found under a coffee machine and had an overdue inspection, another bottle wasn't attached to the bulkhead, and the automatic system inside the hazmat locker had not been inspected since 2000.

Petty Officer Killian's finds caused a full inspection of the hangar, which led to even more discrepancies.



**AM2(AW) Christopher Nadeau
VP-26**

During a pre-flight of a visiting P-3C from VP-40, Petty Officer Nadeau was called on to verify a leaking brake-accumulator fitting in the hydraulic service center. Using the 18-inch rule, he continued to inspect the hydraulic service center for more hydraulic leaks. He found the turn barrel for the autopilot-emergency disconnect cable unsecured and backing off. Had this discrepancy gone undetected, the turn barrel would have separated, disabling the autopilot-emergency disconnect system and causing loss of flight control.

Petty Officer Nadeau immediately notified maintenance control and his supervisor. The discrepancy was fixed and the aircraft returned to FMC status.



**AD2 John Tipton
VR-56**

After air-traffic control reported seeing an unknown fluid venting from the port engine during takeoff, Petty Officer Tipton adeptly performed all published maintenance procedures. When he did not find the source of the problem, he tenaciously continued investigating and eventually determined vaporized fuel was the unknown fluid. Tests later proved that fuel had leaked into the oil system, which could have caused an engine failure. He found a leak in the fuel-oil cooler; oil was being diluted by fuel.



**AD3 Danny Hansen
VAW-113**

During the first day of CVW-14 carrier qualifications, Petty Officer Hansen's quick actions prevented significant damage to a \$90-million-

dollar E-2C Hawkeye 2000 aircraft. He also prevented potentially serious injury to flight-deck personnel.

He was a troubleshooter and part of the E-2C safety chain around the propellers of Black Eagle 600. He noticed a fastener laying on the flight deck a few inches below the spinning starboard propeller. He immediately alerted the flight-deck coordinator, who signaled the aircrew to secure the starboard engine.

After verifying the fastener had not come from Black Eagle 600, the starboard engine quickly was restarted, allowing the squadron to expeditiously complete its carrier-qualification requirements.



**AD3 Paul Ciaramella
VP-26**

While inspecting an engine nacelle on a P-3 ISIS "C," Petty Officer Ciaramella found a 7/16 hex nut jamming the linkage-control rods for the power levers. He immediately notified the ISIS coordinator and his work-center LPO. The FOD was removed, and another look revealed no discrepancies.

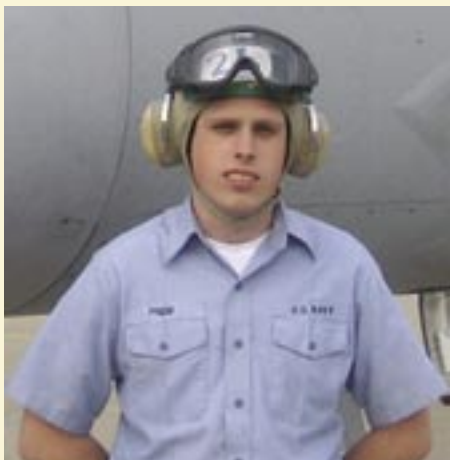
Had the easy-to-overlook nut not been discovered, it could have led to a loss of engine-power control and subsequent loss of the aircraft.



SSgt. Stephen Stull
HMH-772

SSgt. Stull was working on a QA-required task during a phase inspection on a CH-53E. Outside an area of his normal scan, he found the No. 6 hanger bearing for the tail drive shaft moved freely within the damper housing.

Investigating more closely, SSgt. Stull found the wrong damper housing had been used. If ignored, this discrepancy would have led to the loss of aircraft and possibly aircrew.



AMEAN Adam Friend
VFA-213

During an aircraft launch, Airman Friend was doing final-checker training on Blacklion 205 and noticed a ball bearing was missing from the pin holding the hydraulic hand pump that services the auxiliary pump unit (APU). In this situation, the metal hand pump, which is approximately 2-feet long and located in the right main-landing-gear door, easily

could have dislodged. The hand pump could have caused disastrous damage to the landing gear and hydraulic lines; it also could have FODed the engine.



ADAN Linus Dias
HSL-48 Det. 7

During a daily inspection on Venom 510 aboard USS *Hue City* (CG-66), Airman Dias discovered the retaining bracket for the LDS cable on the No. 2 engine was broken. Had this discrepancy gone unnoticed, it may have resulted in loss of No. 2 engine control or caused flight-control binding, endangering the aircraft and aircrew.



AM2(AW) Clifford Grambo
HSL-48 Det. 7

While inspecting hydraulic lines on Venom 511 during an aircraft phase A inspection, Petty Officer

Grambo discovered that the return line for No. 1 tail rotor servo was chafed. It was rubbing against an adjacent hydraulic line and threatened flight safety.

Petty Officer Grambo worked tirelessly for 10 hours to remove the line and to measure the degree of chafing before determining it was out of limits.



LCpl. Armando Anchondo-Villegas
H&HS Yuma

While doing a "B" Phase inspection of the flight controls on an HH-1N helicopter, LCpl. Anchondo-Villegas found a 3-inch crack on the pylon-support attachment, parallel to the servo-actuator mount. These mounts are essential in stability of the aircraft's flight-control system. This crack was difficult to see and was an extraordinary find. His attention to detail and extra effort highlighted a serious problem in a critical part of the airframe, which could have led to a serious mishap.

CROSSFEED

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Reclamation Team

Emergency Reclamation Crash and Fire Tags Misunderstood

By AMCS(AW) Robert Chenard

Problem: Crash and fire tags are not available when doing a FEDLOG search for NSNs. NAVAIR 01-1A-509, Volume 2, Chapter 9, Table 9-2 lists the required tags and labels as suggested consumable items. The NSNs are found in Volume 4, Chapter 2, Table 2-18.

Solution: These items now can be ordered through the Navy Forms Online at <https://forms.daps.dla.mil>. You can do an online search without setting up an account, but you'll have to set

up an account before placing an order. Once on the website, go to the "warehouse forms" tab, and click on the "order forms" table. Enter the NSN in the search block in the top, right-hand corner, making sure to enter the NSN without dashes.

Best Practice: HMM-262 Futenma, Japan, found the site and has a stock of tags available in case they are needed on a drill or the real thing. They are prepared should reclamation be necessary.

Respirators for Emergency Reclamation Key to Success

By AMCS(AW) Robert Chenard

Problem: More than 30 percent of commands surveyed in FY07 didn't have all the required material available in the emergency reclamation team (ERT) kits. Most commands have only half-face respirators in the kits, and the same percentage were not inspecting them on a monthly basis.

Solution: The respiratory protection program manager (RPPM) is responsible to make sure respirator wearers are protected adequately (OPNAVINST 5100.23G, paragraph 1507c). Most ERT responses are because of salt-water spray, overhead sprinklers, or fuel dumping or venting on aircraft. These events wouldn't require a respira-

tor, but crashes or fire require protection. We must ensure our people have the right protection. Full-face respirators and cartridges are recommended (NA 01-1A-509, Volume 2, Table 9-2, Item 10). Paragraph 9-9.1.5.1 states that explosions, high-impact crash, or burning may release carbon fibers into the atmosphere. It also provides a warning to wear a full-face respirator when exposed to these materials. This equipment offers greater eye protection because the mask seals around the entire face. The goggles worn with half-face respirators leave gaps, and composite fibers can get into the mucus membranes around the eyes. To save money, the RPPM

and ERT program managers should work together to decide who actually would go to the incident site, meaning only one set is required. Other crew members can wear half-face respirators and goggles, provided the damaged areas are sealed properly before being transported (see NA 01-1A-21, Section X, Table 10-2).

Best Practice: Many commands, like VFA-83, have full-face respirators for their corrosion-control team, which makes up the main body of the

emergency-reclamation team. Their quick fix is to make sure the corrosion team has the right equipment and are listed as primary members of the emergency reclamation team. As funding becomes available, you can replace half-face respirators with full-face ones. This approach will ensure your people are protected.

Senior Chief Chenard is a maintenance analyst at the Naval Safety Center.

Hazmat

Hazardous Material Demands Respect

By AMCS(AW) Robert Chenard

For those who couldn't attend the Fifth Annual Maintenance Safety Conference in sunny San Diego, Calif., let me take time to review the brief on hazmat and get you up to speed.

Training: All personnel are required to receive hazcom training initially, with annual refreshers thereafter. That training must be tailored to individual jobs and specific exposures, and it is broken into management, supervisory and non-supervisory categories. Check with your base safety or environmental office for a schedule of required NAVOSH training classes, including the four-hour hazcom refresher. You also can use the industrial-hygiene survey reports, MSDS and updated training lectures for additional and specific training.

Material Safety Data Sheets (MSDSs): The NAVOSH instruction (OPNAV 5100.23) states that commands must ensure MSDSs are readily available and people review them before working with hazmat. That instruction doesn't specify a timeline for reviewing MSDSs, but the NAMP (Volume V, Chapter 20) says maintainers have just 30 days from check-in to complete the HMC&M program indoctrination and hazcom training. For commands with a lot of hazmat, it's best to start with materials the member is more likely to come into contact with and then complete the rest of the MSDSs within 30 days.

Authorized Usage List (AUL): Most AULs come from the base environmental or CHRIMP (Consolidated Hazmat Reutilization and Inventory Management Program) office with the NSN, manufacturers

name, or chemical/product name. The HMC&M supervisor is responsible for reformatting or revising the command AUL to include processes, unique identifier, and work centers. The most commonly missed item is the unique identifier, which quickly can cross-reference the material from the AUL to the MSDS in case of an emergency. A best practice we've seen is numbering the command AUL and work-center level with the same unique identifier so when something goes wrong in the hangar bay, the MSDS in the "right to know" station matches the material actually involved.

Secondary Labeling: A best practice is to have small, hazardous-chemical, warning labels printed from CHRIMP. They often are used on spray bottles, but how many people have seen them on grease guns in airframes?

Segregation: Alodine was redesignated as a corrosive some time ago, but we still see this material stored with flammables. This item needs to be kept in a corrosives locker. Our website www.safetycenter.navy.mil/training/aids/files/IncompatibleMaterials.pdf has the current compatibility chart. For more questions on segregating hazmat, contact your base hazmat office.

It's important to remember that the commanding officer can be held personally liable for infractions with this program, but the real concern is the health and safety of our people.

Chief Chenard is a maintenance analyst at the Naval Safety Center.

PPE

Is Your PPE Up To Standards?

By ASCS(AW) Reggie Evans

Problem: Many discrepancies are found during surveys of personal protective equipment, especially with cleanliness, worn items, and using the wrong types of equipment.

Solution: Too many times, we're finding aircraft cleaning kits with gloves that are torn, dry rotted, or with soap residue on them. More than one squadron LPO has said these conditions mean they skip using the gloves. Not the right answer! Goggles are another bad area. People are using worn or improper goggles. Chemical goggles should be worn for aircraft washes. Face shields can be used in addition to the goggles but not in place of them. Aprons are torn or unusable. Daily inspections of PPE lockers and wash kits are needed. This equipment protects our people from injury, exposure and contamination from hazardous materials. A dirty or unorganized locker can cross-contaminate

other PPE items. Bacteria can grow in damp areas, so allow your gear to dry before stowing it. I also see respirators stowed improperly. Some still have dirty filter cartridges attached and are stowed in the same bag. Record keeping, at times, is atrocious: Medical screenings do not reflect specific chemicals for painters, no RPPM self audits, no tracking of fit testing or physicals, no record of cleaning (monthly requirement), and no record of filter change out. These discrepancies are checklist items that supervisors and leaders must take care of so our people will be safe.

Best Practice: VMR-1 Marine Corps squadron at Cherry Point, N.C., had an excellent program. They stow their gear correctly, clearly identify and inventory their equipment, keep it clean, and have it ready to use.

Senior Chief Evans is the support equipment analyst at the Naval Safety Center.

Battery Safety

Defining Readily Available

By ATC(AW) Danny Williams

Problem: People don't know the definition of "readily available" when it comes to aircraft batteries. Some commands believe unmixed agents in the spill kit are acceptable.

Solution: A survey question asks, "Is a neutralizing agent readily available in case electrolyte is spilled or comes in contact with skin?" In case of an emergency, would you prefer to have a premixed agent available, or would you want to mix them on site? This one is a no-brainer. Of course, the premixed option is better and more "readily available."

Battery acid is corrosive, and to neutralize it, you need a base substance to counteract the acid.

Baking soda is one of those items, and it will neutralize battery acid very quickly, which is important because, until the PH factor reaches a balanced state, the acid will keep eating away.

Do the right thing. If your local instruction doesn't specify premixing the neutralizers, get it changed.

Best Practices: HMM-265, one of only three squadrons that had no battery related survey hits in the last year.

Chief Williams is a maintenance analyst at the Naval Safety Center.

Class C Mishap Summary

By ADCS(AW) Mike Tate

From May 16, 2007 to September 19, 2007, the Navy and Marine Corps had 20 Class C Mishaps involving 21 aircraft. The cost of these incidents was \$1,605,607.

Some of the incidents during the quarter included several TFOAs, a passenger falling in an aircraft, aircraft damage while towing, SE damage while moving, and drop-tank while dropping.

The TFOAs often involve poor maintenance and inspection techniques. We need to tighten up our game in those areas. Loose gear coming off aircraft in flight is a danger to the aircraft, aircrew and people on the ground. Crunches continue to be a problem. We must follow all the rules about towing aircraft and equipment. If the sea state is

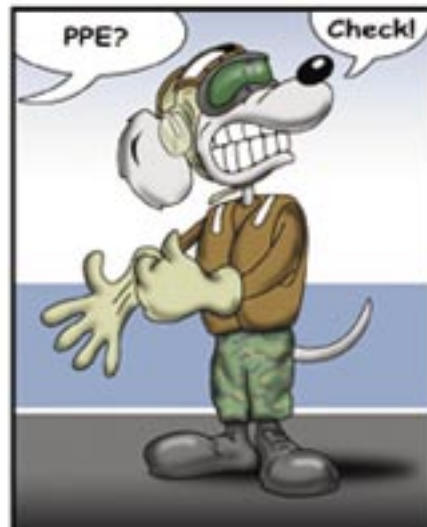
high or the deck is slick, we need to identify those problems, set controls, and move the aircraft when safe. Dropped drop-tanks have been a problem that has plagued maintainers in the past, and, after a period of inactivity, it appears that the problem has reared its ugly head, again. Fortunately, no one was injured, but we need to check the tanks to make sure they are empty—the thump test doesn't work. Open the cap, look inside, and use a dip check. Those simple steps are the only way to make sure tanks with fuel aren't dropped.

Senior Chief Tate is a maintenance analyst at the Naval Safety Center and coordinator of the Cross-feed section of Mech.



Survey Schedule	
October 2007 NAS Oceana NAS Norfolk NAS Jacksonville NAS Mayport	November 2007 NAS Jacksonville NAS Mayport Blue Angels
December 2007 NAS Atlanta	January 2008 MCAS Yuma NAS North Island

the **LINE** rats



Helping Sailors and Marines Help Themselves

Sierra Hotel



Commander, Naval Safety Center would like to recognize the following aviation commands for their recent participation in safety surveys, culture workshops, and maintenance malpractice resource management (MRM) presentations for the months of July-September.

Safety Surveys

SFWSL Oceana	VPU-2	HSC-23	HSC-22
VFA-32	HMM-265	HMH-463	VFA-131
VFA-83	VMFA-115	HSC-25	HSL-37
VMFA-122	VMFA-533	VMGR-152	VP-4
MALS-31	HMLA-367	MALS-16	HMM-262
H&HS Beaufort	HMM-364	HMH-462	
VMFA-312	HS-4	FRCSW	
HMH-363	HSM-41	H&HS Miramar	



MRMs

HSC-24	AMO School
VFA-83	HSC-22
HSC-84	TACAMO

Culture Workshops

HSC-43	HS-5	VFA-37	HS-10
VMFA-112	VFA-31	VFA-94	HMH-463
VX-1	VR-59	HSM-41	MALS-24
VR-64	VQ-7	VP-46	VR-56
VFA-151	VAQ-130	VAQ-139	VFA-106
VFA-2	HMM-165	VFA-25	VT-10
VAW-77	HMLA-773	VPU-1	
FRCSW	VFA-97	VT-4	
VFA-103	VFA-131	VAQ-140	



For more information or to get on the schedule, please contact: Safety Surveys: Capt. Chris Foley, USMC at 757-444-3520 Ext. 7223, MRM: AEC Matthew Cooper at 757-444-3520 Ext. 7275, Culture Workshop: Cdr. John Morrison at 757-444-3520 Ext. 7213.

Use Your PPE!

You can save
yourself a big
headache.

